

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An in-line injection molding machine for low-melting point metallic material ~~in which the injection molding machine is constituted by~~ comprising:

an in-line injection mechanism ~~having~~ comprising a tip portion, a melting cylinder, and a rear-end portion;

said tip portion ~~having a weighing chamber with a required length communicating with a nozzle member at a first end and with said melting cylinder at a second end~~ comprising a nozzle member disposed at a first end, a second end disposed for fluid communication with the melting cylinder, and a weighing chamber formed within the tip portion, the weighing chamber having a selected length and a diameter smaller than an inner diameter of the melting cylinder, the weighing chamber in fluid communication with the nozzle member;

said melting cylinder having a supply port for a solid metal material disposed on an upper side ~~and an agitating and injection means disposed within~~, said melting cylinder provided obliquely in a manner that with a tip portion end is directed in a downward direction ~~directed downwardly~~ such that a molten metal in said melting cylinder flows down by self-weight to be stored in the tip portion;

an agitating and injection means disposed within the melting cylinder for free rotation and axial translation, the agitating and injection means comprising:

an agitating member freely rotatable in the melting cylinder, comprising:

a hollow shaft freely extending a length of the melting cylinder and having a through hole at a central position, and

a plurality of agitating wings formed intermittently about an outer periphery of a tip portion of the hollow shaft, the agitating wings having an external diameter approximately equal to an inner diameter of the melting cylinder, and

an injection rod disposed within the through hole of the hollow shaft, an injection plunger attached unitarily to a tip of the injection rod, the injection rod freely slidable and rotatable in a central portion of the agitating member and extendable beyond the tip of the agitating member to insert into the weighing chamber, the injection plunger having an external diameter insertable into the weighing chamber with a clearance for sliding, and a sealing ring provided on an outer periphery of a tip portion of the

injection plunger to prevent reverse flow of metal at  
injection;

~~said agitating and injection means mounted to rotate or  
advance or retreat freely, wherein said agitating and injection  
means is constituted by an agitating member in which a plurality  
of agitating wings are formed intermittently about an outer  
periphery of a tip portion of a hollow shaft that extends a length  
of said melting cylinder, said agitating wings with an external  
diameter approximately equal to an inner diameter of the melting  
cylinder, said hollow shaft having a through hole at a central  
position and an injection rod having an injection plunger attached  
unitarily to a tip of said injection rod inserted into said  
through hole, said injection plunger freely slidable in a central  
portion of the agitating member and extendable beyond the tip of  
the agitating member so as to insert into said weighing chamber  
freely;~~

said rear-end portion aligned with, and spaced behind, an  
upward end of said melting cylinder, including a device driving  
said agitating and injection means; and

a mold-clamping mechanism disposed external to and downward  
from the nozzle member of said tip portion.

2. (Previously Amended) The injection molding machine for low-melting point metallic material according to claim 1, wherein said injection rod has a screw shutting off a molten metal intruding into a clearance between said injection rod and a hollow shaft portion on an intermediate region of said hollow shaft.

3. (Previously Amended) The injection molding machine for low-melting point metallic material according to claim 1, wherein said injection plunger is provided with a high-temperature resistant sealing ring on an outer periphery of a tip portion of said injection plunger and has a flowing port through the inside of the tip of a conical plunger to a fitting groove of the sealing ring.

4. (Currently Amended) The in-line injection molding machine for low-melting point metallic material according to claim 1, further comprising:

a base supporting said mold-clamping mechanism;

a pedestal on said base spaced apart from said mold-clamping mechanism;

a frame installed on said pedestal having an inclined upper surface incorporating a pair of support shafts at a lower end of said upper surface;

a hydraulic cylinder, spaced ~~a required~~ an interval from said upward end of said melting cylinder, said hydraulic cylinder oriented in a downward direction, an upper end of said hydraulic cylinder at a tip portion of said frame; and

supporting legs, projecting from a lower side of said hydraulic cylinder, said supporting legs inserted respectively in said support shafts;

wherein a nozzle touch device is formed when said injection rod is unitarily coupled by a tie bar across said interval to said hydraulic device.

5. (Currently Amended) The in-line injection molding machine for low-melting point metallic material according to claim 1, wherein a driving device for said agitating member ~~is constituted~~ by comprises an electric motor, which is provided on a side of supporting legs of the melting cylinder so as to move together with said melting cylinder.

6. (Currently Amended) The injection molding machine for low-melting point metallic material according to claim 4, further comprising:

a nozzle touch block interposed between said mold-clamping mechanism and said pedestal and on the lower tip of said nozzle touch device, wherein said nozzle touch device is placed on said pedestal so as to swivel freely and wherein touching a nozzle member attached to the front of the nozzle touch block to ~~moldings~~ a mold is performed by moving the pedestal and nozzle touching device to the mold-clamping mechanism across the nozzle touch block and a rear of an upper surface of the base.

7. (Previously Amended) The injection molding machine for low-melting point metallic material according to claim 4, wherein said nozzle touch block comprises:

a second nozzle member provided horizontally on a front face of said nozzle touch block aligned with an opening in said mold-clamping mechanism;

an inclined rear surface of said nozzle touch block positioned on an upper inner side;

a gate for nozzle-touching formed on said inclined rear surface communicating with the nozzle member of said injection mechanism; and

a hot runner bent formed within the nozzle touch block connecting said second nozzle member and said gate.